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Dairy Cattle Breeds

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U. S. DEPARTMENT OF AGRICULTURE

SEVERAL BREEDS of cattle in the United States are recognized as dairy breeds. Although much alike in what is known as general dairy conformation, these breeds differ to some extent in certain characteristics. What these characteristics are, the factors to consider in selecting a breed, and the history of the origin and development of the breeds are questions of interest to both the beginner and the established breeder of dairy cattle. These are the topics discussed in this bulletin.

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DAIRY CATTLE BREEDS

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DAIRY CATTLE IN THE UNITED STATES

ABOUT 41,300,000 cattle of all ages were being kept for dairy purposes in the United States on January 1, 1945, according to estimates made by the United States Department of Agriculture. Sixty-eight percent of these, or approximately 28,000,000, were cattle of 5 dairy breeds, namely: Ayrshire, Brown Swiss, Guernsey, Holstein-Friesian, and Jersey. Of the other 32 percent, about 9,000,000, or 22 percent, were cattle of minor dairy breeds, dual-purpose breeds, and beef breeds; and about 4,300,000, or 10 percent, were cattle of no particular breed.

Of the 28,000,000 cattle of the major dairy breeds, about 1,648,000, or 5½ percent, are registered. Much of the improvement in our dairy cattle will continue to come from increasing the number of good registered animals and through the use of good registered bulls in grade dairy herds. The development of good grade dairy herds from cows of no particular breed can be accomplished in a few generations by the use of good registered dairy bulls. For these reasons, registered dairy cattle have played in the past and will play in the future a very important role in the dairy industry of the Nation.

NUMBER AND DISTRIBUTION OF BREEDS

Table 1 shows the estimated total number of grades and registered dairy cattle of each dairy breed in the United States and different parts of the country on January 1, 1932. The relative percentages of each breed in the different sections are based on information obtained from the Bureau of Agricultural Economics from an inquiry sent to over 21,000 crop correspondents in February 1932. Grades were listed with the breeds to which they seemed to belong. The number of cattle of each breed on January 1, 1932, was determined from the total cattle kept for dairy purposes in each section and the relative numbers that were of these breeds in the herds of crop correspondents. There were about 23,700,000 dairy cattle in the United States (including possibly 650,000 dairy bulls in use) at that time.

TABLE 1.—*Approximate number and distribution of cattle of dairy breeds, including registered and grades, by sections, in the United States, Jan. 1, 1932*

Breed	Cattle of dairy breeds	Relative distribution of breeds						
		United States	North Atlantic States	North Central States, west	North Central States, east	South Atlantic States	South Central States	Western States
	<i>Number</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Ayrshire.....	317,000	1.4	4.0	0.6	1.4	0.4	0.3	1.0
Brown Swiss.....	248,000	1.0	.8	2.0	1.3	.3	.4	1.5
Guernsey.....	3,709,000	15.7	21.6	20.6	13.5	19.6	2.4	17.5
Holstein.....	9,465,000	39.9	56.5	46.7	53.7	12.7	9.2	47.0
Jersey.....	9,961,000	42.0	17.1	30.1	30.1	67.0	87.7	33.8
Total.....	23,700,000	100.0	100.0	100.0	100.0	100.0	10.00	100.0

Between 1932 and 1945 the number of cattle of the major dairy breeds increased about 18 percent. The exact distribution of this increase between the individual breeds is not known, but the percentage distribution is probably not very different from that in 1932.

Of the large numbers of cattle of dual-purpose breeds kept for milk, cattle of the Shorthorn breed are the most numerous, and are widely distributed in all States. Those breeds most commonly used for milk are indicated in table 4.

Table 2 shows the number of registered cattle of the dairy breeds on January 1, 1930, as enumerated by the census, by sections and by States. Similar data are not obtainable from the 1940 census.¹

Table 3 gives the average production of milk and butterfat of the cows having official yearly records in the breed associations.

TABLE 2.—*Purebred (registered) cattle of the dairy breeds on farms in 1930, by States and sections, as shown by the census*

Division and State	Total	Ayrshire	Brown Swiss	Guernsey	Holstein-Friesian	Jersey	All other breeds *
United States.....	1,280,161	48,236	25,734	200,721	649,739	354,939	792
Geographic divisions:							
New England.....	87,889	12,256	467	19,397	32,567	23,089	113
Middle Atlantic.....	281,054	20,584	2,177	46,916	180,095	31,220	62
East North Central.....	401,332	5,295	13,947	66,368	233,768	81,804	150
West North Central.....	211,884	5,106	7,984	30,046	123,610	44,869	269
South Atlantic.....	72,467	1,536	206	20,577	21,200	28,885	63
East South Central.....	57,704	166	22	1,441	4,446	51,628	1
West South Central.....	66,877	316	102	1,755	7,171	57,458	75
Mountain.....	36,489	1,007	229	4,030	21,878	9,328	17
Pacific.....	64,465	1,970	600	10,191	25,004	26,658	42
New England:							
Maine.....	16,021	1,096	89	4,003	4,613	6,134	86
New Hampshire.....	11,179	2,115	55	2,555	5,153	1,301	-----
Vermont.....	25,716	4,065	145	3,468	7,986	10,045	7
Massachusetts.....	19,552	2,753	105	5,491	8,187	3,013	3
Rhode Island.....	3,182	429	13	796	1,555	388	1
Connecticut.....	12,239	1,798	60	3,064	5,073	2,208	16
Middle Atlantic:							
New York.....	155,626	14,881	1,230	19,390	106,311	13,799	15
New Jersey.....	17,075	316	164	3,925	10,232	2,397	41
Pennsylvania.....	108,353	5,387	783	23,601	63,552	15,024	6

* Including animals reported as registered, but with breed not specified.

¹ See table 6, p. 6, for approximate number of animals registered each year by breeds.

TABLE 2.—*Purebred (registered) cattle of the dairy breeds on farms in 1930, by States and sections, as shown by the census—Continued*

Division and State	Total	Ayrshire	Brown Swiss	Guernsey	Holstein-Friesian	Jersey	All other breeds *
East North Central:							
Ohio.....	82,102	1,441	940	12,440	35,027	32,253	1
Indiana.....	35,751	535	553	6,429	12,103	16,094	37
Illinois.....	59,615	625	4,474	5,241	29,060	10,179	36
Michigan.....	71,750	777	1,547	11,736	41,786	15,844	60
Wisconsin.....	152,114	1,917	6,433	30,522	105,792	7,434	16
West North Central:							
Minnesota.....	78,650	1,066	3,176	15,147	54,072	5,141	48
Iowa.....	43,702	733	3,414	6,569	26,211	6,711	64
Missouri.....	31,548	160	144	2,289	7,875	21,030	50
North Dakota.....	9,354	118	339	1,454	6,950	493	—
South Dakota.....	9,141	312	488	1,203	6,516	595	27
Nebraska.....	11,933	420	146	1,240	7,865	2,250	12
Kansas.....	27,556	2,297	277	2,144	14,121	8,649	68
South Atlantic:							
Delaware.....	2,896	86	—	877	1,545	388	—
Maryland.....	19,294	661	57	6,093	9,553	2,885	45
District of Columbia.....	234	—	—	1	231	2	—
Virginia.....	14,150	82	35	5,288	5,756	2,989	—
West Virginia.....	6,863	293	107	1,112	1,668	3,682	1
North Carolina.....	11,788	362	1	3,393	978	7,054	—
South Carolina.....	5,969	—	—	2,430	763	2,776	—
Georgia.....	8,432	2	3	947	388	7,092	—
Florida.....	2,841	50	3	436	318	2,017	17
East South Central:							
Kentucky.....	16,903	32	20	616	2,953	13,281	1
Tennessee.....	18,869	34	2	210	894	17,729	—
Alabama.....	6,764	23	—	212	143	6,386	—
Mississippi.....	15,168	77	—	403	456	14,232	—
West South Central:							
Arkansas.....	6,532	5	5	264	514	5,737	7
Louisiana.....	4,234	1	—	123	431	3,679	—
Oklahoma.....	16,130	233	92	867	3,770	11,167	1
Texas.....	39,981	77	5	501	2,466	36,875	67
Mountain:							
Montana.....	4,551	111	125	653	3,167	495	—
Idaho.....	9,557	194	27	1,577	4,842	2,917	—
Wyoming.....	1,596	1	11	194	1,127	262	1
Colorado.....	8,155	403	42	764	5,669	1,277	—
New Mexico.....	1,322	13	—	54	463	777	15
Arizona.....	3,427	166	15	276	1,956	1,014	—
Utah.....	6,848	35	—	485	3,901	2,427	—
Nevada.....	1,033	84	9	27	753	159	1
Pacific:							
Washington.....	19,597	691	140	3,960	8,125	6,681	—
Oregon.....	21,755	328	261	3,190	3,577	14,360	39
California.....	23,113	951	199	3,041	13,302	5,617	3

* Including animals reported as registered, but with breed not specified.

TABLE 3.—*Average yearly production by the cows of different breeds that had completed official yearly records up to the dates indicated*

Breed	Advanced register or register of merit				Herd-improvement register			
	Records of cows and heifers	Milk	Butterfat		Records of cows and heifers	Milk	Butterfat	
			Quantity	Test			Quantity	Test
	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Percent</i>
Ayrshire.....	¹ 7,129	10,469	416	4.0	² 42,509	8,546	346	4.0
Brown Swiss.....	³ 1,496	13,869	558	4.0	⁴ 5,431	8,985	368.4	4.1
Guernsey.....	⁵ 88,104	10,094	501	5.0	⁶ 21,242	8,628	423	4.9
Holstein.....	³ 50,602	16,670	574	3.4	³ 118,467	11,335	391	3.5
Jersey.....	³ 70,306	8,644	463	5.4	⁶ 83,576	7,035	378	5.4

¹ To Jan. 1, 1941.² To Jan. 1, 1944.³ To Oct. 1, 1943.⁴ From Apr. 1, 1940, to Jan. 1, 1945.⁵ To Jan. 1, 1945.⁶ To Jan. 1, 1943.

TABLE 4.—*Breeds of cows kept for dairy purposes in different parts of the United States and in herds of various sizes, Jan. 1, 1932*¹

Region and size of herd	Cows kept for dairy purposes ²	Distribution, by breeds						
		Holstein	Jersey	Guernsey	Ayrshire and Brown Swiss	Short-horn and Red Polled	Hereford, Aberdeen Angus, and others	Mixed breeding
Region:	<i>Number</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
North Atlantic.....	3,213,000	51.1	15.5	19.5	4.3	2.6	0.4	6.6
East North Central.....	5,880,000	36.0	23.2	15.9	2.0	12.7	1.9	8.3
West North Central.....	7,028,000	23.9	13.4	6.0	1.2	36.2	7.8	11.5
South Atlantic.....	1,825,000	8.9	47.1	13.8	.5	6.1	4.2	18.9
South Central.....	4,741,000	6.3	60.0	1.7	.5	9.3	4.2	18.0
Western.....	2,209,000	35.5	24.2	12.7	1.1	16.2	3.4	8.9
United States.....	24,896,000	26.8	28.2	10.5	1.6	17.2	4.2	11.6
Number of milk cows per farm:								
1.....	1,454,000	8.4	60.0	7.0	1.1	5.5	1.7	16.3
2 or 3.....	3,399,000	11.5	48.8	7.7	.9	12.2	3.8	17.1
4 or 5.....	3,346,000	16.4	34.0	9.1	1.1	19.0	4.0	15.4
6 to 10.....	6,969,000	24.4	22.8	9.8	1.5	23.6	4.9	12.8
11 to 20.....	6,413,000	37.3	16.8	12.4	2.1	19.3	4.1	8.0
21 to 30.....	1,873,000	46.8	20.3	13.1	2.2	9.8	3.5	4.3
31 to 50.....	864,000	46.8	25.3	12.9	2.6	4.7	1.9	5.8
Over 50.....	578,000	39.8	26.8	17.2	2.6	6.6	2.2	5.0
Total.....	24,896,000	26.8	28.2	10.5	1.7	17.2	4.1	11.6

¹ Prepared by John B. Shepard, Bureau of Agricultural Economics.² Estimated number of cows and heifers 2 years old and over kept for milk Jan. 1, 1932.

Table 4 shows the breeds of milk cows in different sections of the United States and in herds of various sizes. The relative numbers in each of the different-sized herds are calculated according to the distribution shown for 1932, when an inventory was taken on February 1 of the herds of 21,554 crop correspondents scattered throughout the United States, to show the approximate distribution of cows kept for dairy purposes by breeds, at that time. The relative number of cows kept for dairy purposes, both grade and registered, combined, is expressed as a percentage for each of the breeds, in each group of States and in each of the different-sized herds.

The data for breed distribution of cows kept for dairy purposes, shown in table 4, are based on conditions some years ago, but little new information on this subject has become available since that time. While some changes have been apparent in local areas, it is believed that the figures shown for various regions and sizes of herds are reasonably representative of conditions in January 1945.

The numbers of cows kept for dairy purposes at present in the various regions, as shown in table 5, are somewhat different from those shown in table 4. The predrought high point of numbers occurred in 1934, the low point following the drought period was in 1938, and gains in numbers have occurred in the past few years. In 1945 there were about 12 percent, or 3,000,000, more milk cows in the United States than in 1932. Percentage gains from 1932 to 1945 were largest in the South Central region, but were also substantial in the East North Central, South Atlantic, and Western regions. In the West North Central States, where liquidation was heavy because of drought

in 1934 and 1936, milk cow numbers were only 1 percent greater in 1945 than in 1932.

TABLE 5.—*Number of cows kept for dairy purposes, Jan. 1, 1932, 1934, 1938, and 1942-45*¹

Region	1932	1934	1938	1942	1943	1944	1945
North Atlantic.....	3, 231, 000	3, 256, 000	3, 171, 000	3, 271, 000	3, 247, 000	3, 322, 000	3, 395, 000
East North Central.....	5, 880, 000	6, 247, 000	5, 906, 000	6, 390, 000	6, 543, 000	6, 719, 000	6, 853, 000
West North Central.....	7, 028, 000	7, 763, 000	6, 388, 000	6, 952, 000	7, 173, 000	7, 245, 000	7, 118, 000
South Atlantic.....	1, 825, 000	1, 982, 000	1, 851, 000	1, 972, 000	2, 035, 000	2, 105, 000	2, 122, 000
South Central.....	4, 471, 000	5, 342, 000	4, 974, 000	5, 384, 000	5, 608, 000	5, 733, 000	5, 755, 000
Western.....	2, 209, 000	2, 341, 000	2, 176, 000	2, 429, 000	2, 502, 000	2, 532, 000	2, 542, 000
Total, United States.....	24, 896, 000	26, 931, 000	24, 466, 000	26, 398, 000	27, 106, 000	27, 656, 000	27, 785, 000

¹ Cows and heifers 2 years old and over kept for milk. Estimated by John L. Wilson, Bureau of Agricultural Economics.

WHAT IS A DAIRY BREED?

The term "dairy breed" has been accepted by stockmen and investigators as referring to the breeds of cattle that are especially well fitted for the production of milk and butterfat. Such breeds represent the efforts made by breeders of many generations toward improving the milking capacity of certain classes of cows. Because of this fact the inherent tendency of registered dairy cows to produce milk is greater than that of a native or unimproved cow. This inherent capacity is transmitted to the offspring. As a result, the mating of a registered dairy animal with a native or scrub produces a grade animal which is superior to the scrub in production and in other dairy characteristics.

A registered dairy animal is one that has met the requirements for registration laid down by the association for that breed in the United States. A grade is the offspring resulting from mating a registered animal with a scrub, or from mating animals not registered but having near ancestors that are registered. The offspring of a registered animal and a grade is also a grade, and through progressive use of registered bulls such animals become high grade. The names of the breeds (Ayrshire, Brown Swiss, etc.) may refer to either registered or grade animals; but to prevent misunderstanding it is desirable to precede the breed name with the word "registered" or "grade."

In addition to the breeds of dairy cattle mentioned, cows of other breeds, including both the beef and dual-purpose, are kept for dairy purposes. These are discussed in Farmers' Bulletin 1779, Beef-Cattle Breeds for Beef and for Beef and Milk.

REGISTRATION

To be eligible for registration a dairy animal must be from a sire and dam which are recorded by name and number in a register of the breed, commonly called the herdbook. The animal must also meet certain color qualifications and other requirements for registration which are laid down by the various breed organizations. Copies of these rules may be obtained by writing to the associations concerned, as listed on page 31. The number of dairy cattle regis-

tered in the United States each year, 1930-1944, by breeds, is shown in table 6.

In addition to the herd register there is for each breed another register in which are entered the names of registered cows that have completed records meeting specified requirements of milk and butter-fat production under definite regulations. Bulls that have a certain number of tested daughters are also recorded in this register. This record of tested cows and of bulls with tested daughters is called by various names—Advanced Registry for the Ayrshires, Register of Production for the Brown Swiss, Advanced Register for the Guernseys and Holsteins, and Register of Merit for the Jerseys.

TABLE 6.—*Number of dairy cattle registered each year, by breeds, in the United States, 1930-44*

Year	Ayrshire	Brown Swiss	Guernsey	Holstein-Friesian	Jersey	Total, all breeds
1930.....	10, 209	5, 884	44, 472	105, 143	58, 117	223, 825
1931.....	8, 876	5, 419	40, 844	92, 346	48, 473	195, 958
1932.....	7, 623	4, 461	35, 779	68, 315	41, 229	157, 407
1933.....	8, 972	4, 510	29, 994	98, 523	35, 456	177, 455
1934.....	17, 436	9, 112	34, 762	100, 218	38, 578	200, 106
1935.....	13, 854	6, 420	45, 037	76, 885	48, 222	190, 418
1936.....	14, 107	7, 490	51, 493	77, 942	43, 312	194, 344
1937.....	14, 103	8, 566	50, 312	79, 110	43, 682	195, 773
1938.....	13, 753	8, 642	47, 534	81, 622	44, 925	196, 476
1939.....	15, 198	9, 996	53, 889	85, 598	47, 100	211, 781
1940.....	16, 237	10, 473	56, 860	145, 423	48, 527	277, 520
1941.....	17, 014	12, 819	59, 600	102, 803	60, 543	252, 779
1942.....	17, 713	14, 019	63, 674	106, 624	71, 821	273, 851
1943.....	20, 027	16, 257	75, 521	111, 197	54, 160	277, 162
1944.....	20, 755	17, 494	74, 231	122, 910	56, 471	291, 861

The Ayrshire, Brown Swiss, Guernsey, Holstein, and Jersey organizations have each adopted a supplementary register called the Herd Test, or Herd-Improvement Registry. This differs from the Advanced Register and Register of Merit in that breeders must test and report the production of every cow in the herd, rather than of only a few selected animals.

If the owner of registered dairy cows is a member of a dairy herd-improvement association, his whole herd will be on test in that organization. Tests made of registered cows in such associations may be used for the Herd-Improvement Test by national dairy breed associations, if the owners of the herds have applied for admission of their herds to the Herd-Improvement Test registers of the breed associations, and the records have been approved by the State agricultural colleges or experiment stations.

Requirements for admission to the breed registers of production (advanced register and herd-improvement register) and the rules under which the records must be made vary somewhat for the different breeds. Detailed information on this point may be obtained from the breed associations concerned.

WHICH BREED TO SELECT

Sometimes too much emphasis is given to the question of which breed to choose and too little to the matter of getting good individuals—that is, those that are well bred and are high producers. There are three points, however, that should be considered in deciding

which breed to select. These are (1) the breed that predominates in the locality where the new herd is to be located, (2) personal preference, and (3) market requirements for the product.

THE BREED THAT PREDOMINATES

A dairyman just starting with registered animals should as a rule select the same breed as his neighbors. It is difficult for an isolated small breeder to dispose of his surplus stock to advantage, while if there are many breeders with the same breed, buyers are attracted to the locality because of the better chance of getting the desired animals from one or more of the several breeders.

There are other advantages to a dairyman in having the same breed as his neighbor, such as the possibility of exchanging bulls and of owning good registered bulls cooperatively. These advantages are obtained by those having grade herds as well as by those with registered cows. Then there is also the opportunity for taking advantage of special breed sales of surplus stock, and, lastly, the advantage of bringing the community together in other endeavors which usually result where there is but one breed.

REGIONAL DIFFERENCES IN BREED PREFERENCES

As shown in table 4, there are sharp differences in the breed of dairy cattle preferred by farmers in the various parts of the country. In general, the percentage of Jerseys averages highest in the South and in areas where most of the farmers sell cream. Holsteins are most numerous in sections where the milk is sold largely for making cheese or evaporated milk, but there are also large numbers in the large herds kept in the principal market-milk areas. Guernseys are most numerous in the main dairy States, the numbers kept in market-milk areas depending in part on the differential paid for milk of high color and high test. Ayrshires and Brown Swiss are distributed somewhat as are Guernseys, but there are relatively few in the South and West. Shorthorns kept for milk are most numerous where beef production is important, chiefly in the central and western portions of the Corn Belt and in the Great Plains area.

PERSONAL PREFERENCE

In a district where no breed is established, or in sections where several breeds are about equally represented, the prospective breeder must be guided largely by his personal preference. A person usually takes a liking to one breed, for reasons not easily explainable. Naturally, he would take more interest in caring for animals of that breed than for those of a breed that he does not like so well.

Personal preference, however, must not overshadow the matter of quality of individual animals. If high-producing individuals of the breed not so well liked are available at reasonable cost, and individuals of the same quality of the breed well-liked are not available except at a much higher cost, it may be wiser to select the former, for usually a dairyman soon begins to like a breed with which he is doing well.

MARKET REQUIREMENTS FOR PRODUCT

Market requirements for the product should not be overemphasized in selecting the breed. For a time a dairyman may sell his product in a market where low-testing milk has the advantage, while later the conditions may be changed, and a high-testing milk will sell to better advantage. Obviously, a breeder cannot shift from one breed to another to meet the fluctuations in market demands.

When one is selling to a city milk plant, however, the price paid for the extra butterfat over the basic test, or deducted from the standard price when the milk is below basic test, may well be considered in selecting the breed. The point here is that sometimes in some whole-milk markets the differential may favor high-testing milk, and at other times or in other markets it may favor low-testing milk.

In summing up the matter of which breed to select, this point should be kept in mind—there are good cows and poor cows in all breeds and, other things being equal, the breeder or dairyman who gets good individuals to begin with will have a good chance for success no matter what breed he selects.

THE SCORE CARD

A score card for dairy cows and one for dairy bulls were adopted by the Purebred Dairy Cattle Association and approved by the American Dairy Science Association in 1943. The purpose of the score card is to teach beginners the art of judging and also to describe for breeders and others the type of animals considered ideal for each of the breeds. These score cards, which are shown in part on pages 9 and 10, give definite values for the various points of conformation and emphasize the ones requiring special attention by breeders. The breed characteristics for each of the breeds are discussed on subsequent pages in this bulletin.

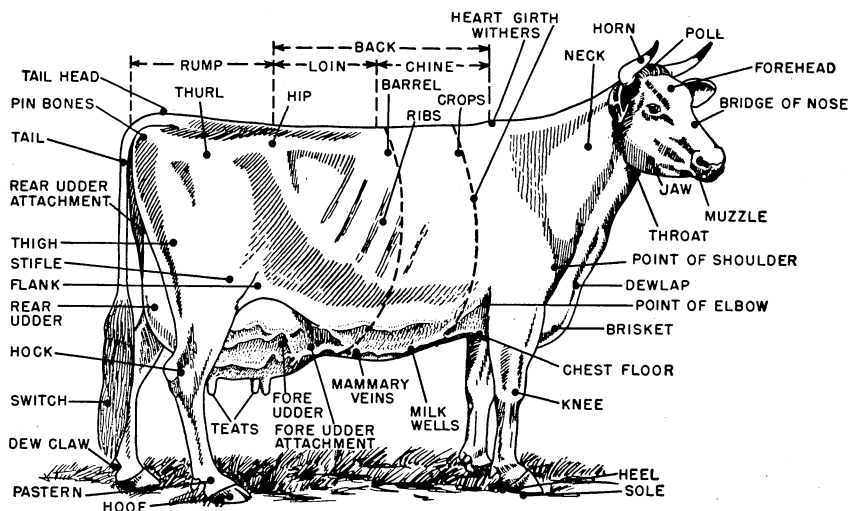


FIGURE 1.—Diagram of cow, showing names and location of parts.

DAIRY COW SCORE CARD

Based on Order of Observation		Perfect Score
1. GENERAL APPEARANCE <i>Attractive individuality, revealing vigor, femininity with a harmonious blending and correlation of parts. Impressive style and attractive carriage with a graceful walk.</i>		30
BREED CHARACTERISTICS (see below)		12
HEAD —medium in length, clean-cut; broad muzzle with large open nostrils; lean, strong jaw; full, bright eyes; forehead broad between the eyes and moderately dished; bridge of nose straight; ears medium size and alertly carried.		
SHOULDER BLADES set smoothly against chest wall and withers, forming neat junction with the body.		
BACK strong and appearing straight with vertebrae well defined.		
LOIN broad, strong and nearly level.		
RUMP long, wide; top-line level from loin to and including tail head.		10
HIPS wide, approximately level laterally with back, free from excess tissue.		
THURLS wide apart.		
PIN BONES wide apart and slightly lower than hips, well defined.		
TAIL HEAD slightly above and neatly set between pin bones.		
TAIL long and tapering with nicely balanced switch.		
LEGS wide apart, squarely set, clean-cut and strong with fore legs straight.		
HIND LEGS nearly perpendicular from hock to pastern. When viewed from behind, legs wide apart and nearly straight. Bone, flat and flinty, tendons well defined.		8
Pasterns, of medium length, strong and springy. Hocks cleanly moulded.		
FEET short and well rounded, with deep heel and level sole.		
2. DAIRY CHARACTER		20
<i>Animation, angularity, general openness, and freedom from excess tissue, giving due regard to period of lactation.</i>		
NECK long and lean, blending smoothly into shoulders and brisket; clean-cut throat and dewlap.		
WITHERS well defined and wedge-shaped with the dorsal processes of the vertebrae rising slightly above the shoulder blades.		20
RIBS wide apart. Rib bone wide, flat and long.		
FLANK deep, arched and refined.		
THIGHS incurving to flat from the side; wide apart when viewed from the rear, providing sufficient room for the udder and its attachment.		
SKIN of medium thickness, loose, and pliable. Hair fine.		
3. BODY CAPACITY		20
<i>Relatively large in proportion to size of animal, providing ample digestive capacity, strength and vigor.</i>		12
BARREL deep, strongly supported, ribs wide apart and well sprung; depth and width tending to increase toward rear of barrel.		
HEART GIRTH large, resulting from long, well sprung foreribs, wide chest floor between front legs, and fullness at the point of elbow.		8
4. MAMMARY SYSTEM		30
<i>A capacious, strongly attached, well carried udder of good quality, indicating heavy production and a long period of usefulness.</i>		
UDDER — CAPACITY and SHAPE , long, wide and of moderate depth. Extending well forward, strongly attached, reasonably level floor. Rear attachment, high and wide. Quarters evenly balanced and symmetrical.		25
TEXTURE soft, pliable and elastic. Well collapsed after milking.		
TEATS uniform, of convenient length and size, cylindrical in shape, free from obstructions, well apart and squarely placed, plumb.		
MAMMARY VEINS long, tortuous, prominent and branching, with numerous large wells. Veins on udder numerous and clearly defined.		5
TOTAL		100

DAIRY BULL SCORE CARD

Based on Order of Observation		Perfect Score
1. GENERAL APPEARANCE		30
<i>Attractive individuality, revealing vigor, masculinity with a harmonious blending and correlation of parts. Impressive style and attractive carriage with an active, well balanced walk.</i>		20
BREED CHARACTERISTICS (see below)		
HEAD masculine, medium in length, clean-cut; broad muzzle with large open nostrils; lean, strong jaw; full, bright eyes; forehead broad between the eyes and moderately dished; bridge of nose straight; ears medium size and alertly carried.		
SHOULDER BLADES set smoothly against chest wall and withers, forming neat junction with the body.		
BACK strong and appearing straight with vertebrae well defined.		
LOIN broad, strong and nearly level.		
RUMP long, wide; top-line level from loin to and including tail head.		10
HIPS wide, approximately level laterally with back, free from excess tissue.		
THURLS wide apart.		
PIN BONES wide apart and slightly lower than hips, well defined.		
TAIL HEAD slightly above and neatly set between pin bones.		
TAIL long and tapering with nicely balanced switch.		
2. DAIRY CHARACTER		35
<i>Animation, angularity, general openness, and freedom from excess tissue.</i>		
NECK masculine and long, with moderate crest blending smoothly into shoulders. Clean-cut throat, brisket and dewlap.		
WITHERS well defined and wedge-shaped with the dorsal processes of the vertebrae rising slightly above the shoulder blades.		
RIBS well arched, wide apart, rib bone flat, wide and long.		
FLANKS arched and refined.		
THIGHS when viewed from the side, flat; when viewed from the rear, wide apart. Well cut-up between the thighs.		35
SKIN of medium thickness, loose and pliable. Hair fine.		
TESTICLES both normal. Scrotum normal.		
RUDIMENTARY TEATS wide apart, squarely placed and in front of scrotum.		
MAMMARY VEINS large, long and well defined.		
3. BODY CAPACITY		20
<i>Relatively large in proportion to size of animal, and deep at the flank, providing ample digestive capacity, strength and vigor.</i>		10
BARREL deep, strongly supported, ribs wide apart, and well sprung.		
HEART GIRTH large, resulting from long, well sprung foreribs, wide chest floor between front legs, and fullness at the point of elbow.		10
4. LEGS AND FEET		15
FORE LEGS medium in length, straight, wide apart, squarely placed. Feet short, and well rounded, with deep heel and level sole.		5
HIND LEGS when viewed from the side, nearly perpendicular from hock to pastern. When viewed from the rear, legs wide apart and nearly straight. Bone, flat and flinty, tendons well defined. Pasterns, of medium length, strong, and springy. Hocks cleanly moulded. Feet same as above.		10
TOTAL		100

On the back of the score card is a diagram which gives the names and the location of the various parts or points of conformation of the animal. Figure 1 is a copy of the diagram on the back of the dairy cow score card. A similar diagram appears on the back of the dairy bull score card. These cards also show on the reverse side the ideal types in natural colors of all five breeds, illustrating both bulls and cows. Copies of these cards may be obtained by writing to the Purebred Dairy Cattle Association.

EVALUATION OF DEFECTS

The score card for cows also gives the following instructions on how to evaluate the defects found on the animal being judged:

In a show ring, disqualification means that the animal is not eligible to win a prize. Any disqualified animal is not eligible to be shown in the group classes. In slight to serious discrimination, the degree of seriousness shall be determined by the judge.

Eyes

1. Total blindness: *Disqualification.*
2. Blindness in one eye: *Slight discrimination.*

Wry face

Serious discrimination.

Parrot jaw

Slight to serious discrimination.

Shoulders

Winged: *Slight to serious discrimination.*

Capped hip

Slight discrimination.

Tail setting

Wry tail or other abnormal tail settings: *Slight to serious discrimination.*

Legs and feet

1. Lameness—apparently permanent and interfering with normal function: *Disqualification.*
—apparently temporary and not affecting normal function: *Slight discrimination.*
2. Bucked knees, blemished hocks, crooked hind legs, weak pasterns: *Serious discrimination.*
3. Evidence of arthritis, crampy hind leg: *Serious discrimination.*
4. Enlarged knees: *Slight discrimination.*

Absence of horns

No discrimination.

Lack of size

Slight to serious discrimination.

Udder

1. One or more blind quarters: *Disqualification.*
2. Abnormal milk (bloody, clotted, watery): *Possibly disqualification. A slight to serious defect.*
3. Udder definitely broken away in attachment: *Serious discrimination.*
4. A weak udder attachment: *Slight to serious discrimination.*
5. One or more light quarters, hard spots in udder, side leak or obstruction in teat (spider): *Slight to serious discrimination.*

Dry cows

In case of cows of apparently equal merit: *Give preference to cows in milk.*

Overconditioned

Serious discrimination.

Temporary or minor injuries

Blemishes or injuries of a temporary character not affecting animal's usefulness: *Slight discrimination.*

Evidence of sharp practice

1. Animals showing signs of having been operated upon or tampered with for the purpose of concealing faults in conformation, or with intent to deceive relative to the animal's soundness: *Disqualification.*
2. Heifer calves showing evidence of having been milked in an attempt to deceive regarding natural form of udder: *Serious discrimination.*

A comparison of the score card for bulls with the score card for cows shows minor differences, such as in the parts relating to masculinity as contrasted with mammary development in cows. Otherwise the two score cards are the same. (See pp. 9, 10.)

AYRSHIRE

ORIGIN AND HISTORY

The Ayrshire breed originated in southwestern Scotland, in the county of Ayr, in the latter part of the eighteenth century. Doubtless cattle from several neighboring countries were used in the formation of the breed, though there is no record of direct foreign importations to the county of Ayr at that time. While this foreign blood probably had a good effect on the ultimate value of the breed, the substantial and efficient development of the breed seems to have come about mostly through subsequent judicious selection and mating.

IMPORTATION AND DISTRIBUTION

The first importations of Ayrshires into the United States occurred in 1822. Since then Ayrshires have been imported almost every year, either from Scotland or Canada. Table 1 shows that in 1932 there were in the United States 317,000 animals carrying more or less Ayrshire blood. According to table 2, there were, in 1930, 48,236 registered Ayrshires in the United States. By January 1, 1945, it is estimated, the number of registered Ayrshires had increased to 121,875.² Ayrshires are scattered through practically all the States, though by far the largest numbers are in the Northeastern States.

GENERAL CHARACTERISTICS

The score cards for bulls and cows adopted by the Purebred Dairy Cattle Association describe the Ayrshire characteristics as follows:

Color.—Red of any shade, mahogany, brown or these with white, or white, each color clearly defined. Distinctive red and white markings preferable; black or brindle markings strongly objectionable.

Size.—A mature cow in milk should weigh about 1,150 pounds and a mature bull in breeding condition 1,800 pounds.

Horns should incline upward, small at base, refined medium length and tapering toward tips.

The Ayrshire (figs. 2, 3, and 4) has a well-built, stocky body, not heavily covered with flesh, but giving the appearance of possessing great vigor and vitality. The calves weigh from 60 to 80 pounds at

² This figure has been calculated from yearly registrations, the allowances for deaths being estimated and 1930 census figures used as a check.

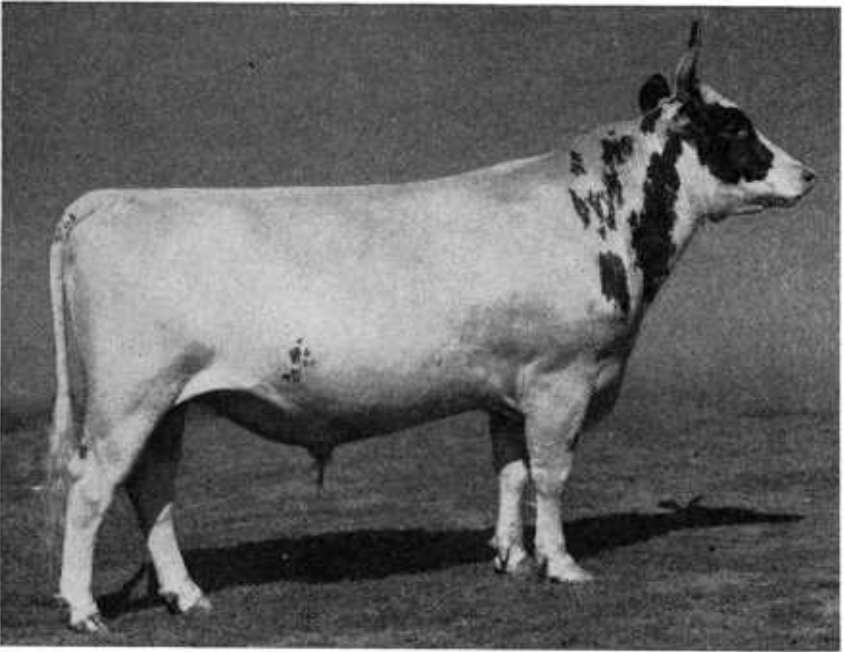


FIGURE 2.—Ayrshire bull, Shirley-Ayr Gay Jester 59207. Grand Champion, National Dairy Show, 1941.

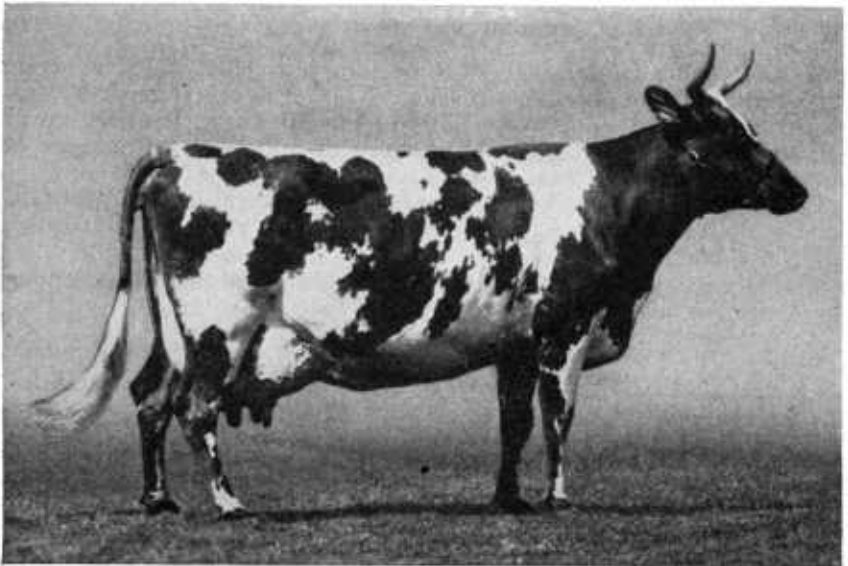


FIGURE 3.—Ayrshire cow, Cacapon Nita by Caesar 148107. Highest butterfat producer of the breed in the United States.

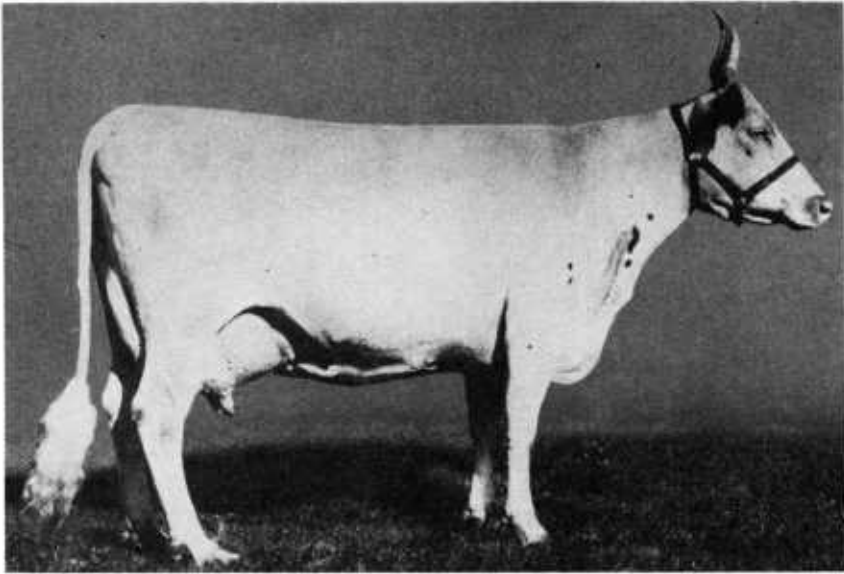


FIGURE 4.—Ayrshire cow, Garclaugh May Mischief 27944. Highest milk producer of the breed in the United States.

birth. The cows are noted for their symmetrical udders, which usually extend well forward and are attached high behind with no tendency to be pendent. The quarters of the udder are generally even; the teats medium in size and well-placed.

PRODUCTION

Ayrshire milk contains about 4 percent butterfat, which is about the average for all the dairy breeds. The 7,129 yearly records completed by Ayrshire cows and heifers in the Advanced Registry up to January 1, 1941, average 10,469 pounds of milk and 416 pounds of butterfat per cow, with an average test of 3.98 percent.

Under Herd-Test rules, 42,509 records were completed up to January 1, 1944, averaging 8,546 pounds of milk, 346 pounds of butterfat, and a test of 4.04 percent.

The 10 highest butterfat and the 10 highest milk producers among the Ayrshires, up to January 1, 1945, are listed in table 7.

TABLE 7.—The 10 highest yearly butterfat and milk producers of the Ayrshire breed in the United States, up to January 1, 1945

Cow	Butterfat	Cow	Milk
	<i>Pounds</i>		<i>Pounds</i>
Cacapon Nita by Caesar 148107.....	1,027.0	Garclaugh May Mischief 27944.....	25,329
Lily of Willowmoor 22269.....	955.6	Vi's Bountiful Lassie 58096.....	24,556
Vi's Bountiful Lassie 58096.....	923.2	Mistress Thistle of South Farm 49818.....	23,029
Auchenbrain Brown Kate 4th 27943.....	917.6	Auchenbrain Brown Kate 4th 27943.....	23,022
Garclaugh May Mischief 27944.....	894.9	Cacapon Nita by Caesar 148107.....	22,756
Auchenbrain Yellow Kate 3d 36910.....	888.3	Lily of Willowmoor 22269.....	22,596
Agawam Bess Howie 43781.....	876.1	Garclaugh Spottic 27950.....	22,589
Harperland Spicy Lass 40652.....	866.2	Nancy Whitehall 47810.....	22,074
Jean Armour 3d 32219.....	859.6	Jean Armour 3d 32219.....	21,938
Nancy Whitehall 47810.....	858.8	Bloomer's Queen 39119.....	21,820

BULLS

Table 8 lists 10 registered Ayrshire bulls that were proved in dairy-herd-improvement associations and reported in the Bureau of Dairy Industry proved-sire lists, published by the United States Department of Agriculture up to January 1, 1945. For a bull to be considered for inclusion in this table, he must have met the following requirements:

(1) He must have had nine or more unselected daughters with production records, whose dams also had production records.

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds.

Records of the daughters and of their dams were converted where necessary to a twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records was taken.

From the sires that met these conditions the 10 whose daughters average the highest in butterfat production were selected.

TABLE 8.—Ten registered Ayrshire sires proved in dairy-herd-improvement associations

Name and number of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>
Deepwells Conquistadore 43956.....	14	491	63
King Henry Clip (Twin) 55032.....	9	472	65
Penshurst True Line 54152.....	10	468	74
Sycamore Jim 46596.....	10	456	131
Penshurst Gerald 38087.....	11	434	119
Whitpain Martyr 54174.....	24	433	82
Penshurst Master Baker 45304.....	9	432	83
Strathglass Douglas Peer 48394.....	16	426	87
Sycamore Charleston 54000.....	9	425	29
Captain Clip of Sandhill 36656.....	15	424	73

BROWN SWISS

ORIGIN AND HISTORY

The original home of the Brown Swiss breed is in Switzerland, where the breed has been developed during many centuries. It is probably one of the oldest in existence, and it is thought that no outside blood has been introduced since records began.

IMPORTATION AND DISTRIBUTION

The first importation of Brown Swiss into the United States was made in Massachusetts in 1869 and another in 1882. Several importations have been made since but only in small numbers. After 1906 there were only a few importations because of regulations due to the prevalence of foot-and-mouth disease in Europe. Table 1 shows that, in 1932, there were in the United States 248,000 animals carrying more or less Brown Swiss blood. According to table 2, there were, in 1930, 25,734 registered Brown Swiss animals in the

United States. By January 1, 1945, it is estimated, the number of registered Brown Swiss had increased to 88,622.³ Brown Swiss are found in nearly all States, the largest numbers being in Wisconsin, Illinois, Iowa, Minnesota, Michigan, New York, Ohio, and Pennsylvania.

GENERAL CHARACTERISTICS

The score cards for bulls and cows adopted by the Purebred Dairy Cattle Association describe the Brown Swiss characteristics as follows:

Color.—A shade of brown varying from a silver to a dark brown. Hair inside ears is a lighter color than body. Nose and tongue black, with a light colored band around nose. Color markings which bar registry are: White switch, white on sides, top head or neck and legs above knees or hocks. White on belly or lower legs objectionable.

Size.—Strong and vigorous. Size and ruggedness with quality desired. Extreme refinement undesirable. A mature cow in milk should weigh about 1,400 pounds. A mature bull in breeding condition should weigh about 1,900 pounds.

Horns.—Inclining forward and slightly up. Moderately small at base, medium length, tapering toward black tips.

The large frame of the Brown Swiss cattle (figs. 5, 6, and 7) indicates that they have been developed for service as draft animals as well as for milk. The calves weigh from 65 to 90 pounds at birth. The heifers are slow in maturing.

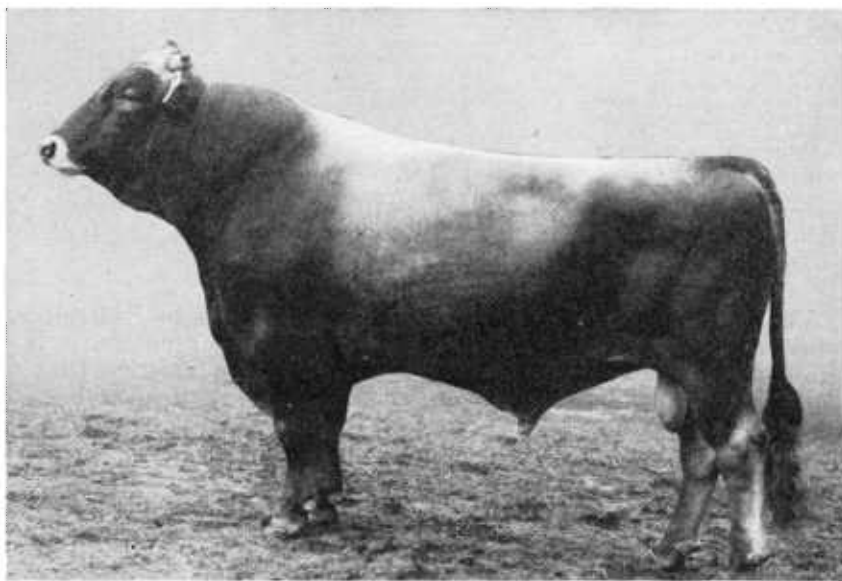


FIGURE 5.—Brown Swiss bull, Septana's Concentration of Bowerhome 35009 Grand Champion, National Dairy Show, 1941.

³ See footnote 2, p. 12.

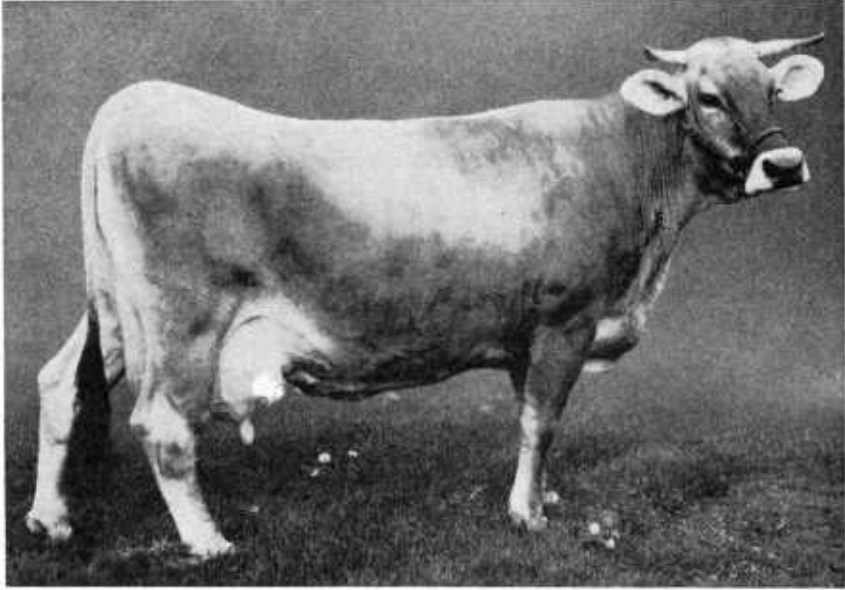


FIGURE 6.—Brown Swiss cow, Illini Nellie 26578. Highest milk and butterfat producer of the breed in the United States.

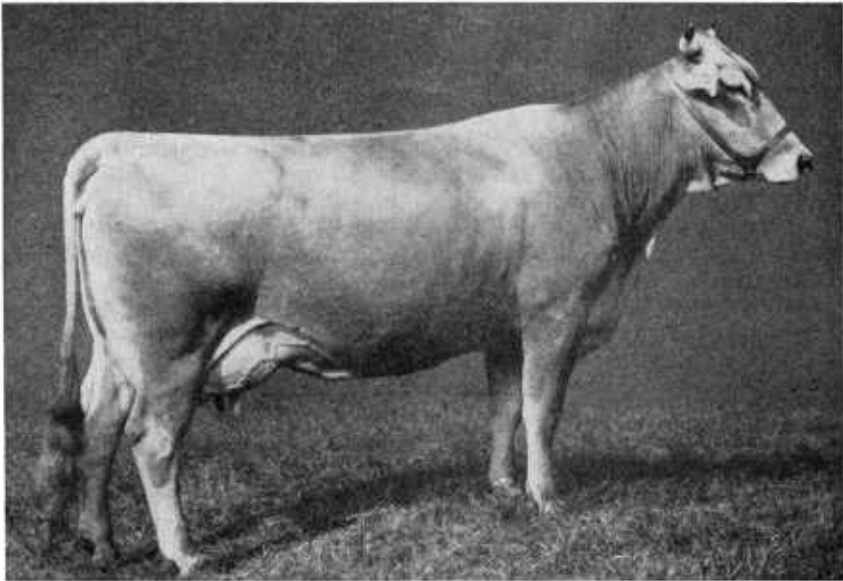


FIGURE 7.—Brown Swiss cow, Jane of Vernon 5th 65386. Grand Champion, National Dairy Show, 1940.

PRODUCTION

The Brown Swiss produce milk of average quality as compared with the other breeds of dairy cattle. The 1,496 cows and heifers that had completed yearly production records and had been admitted to the Register of Production up to October 1, 1943, had an average yearly production of 13,869 pounds of milk and 558 pounds of butterfat per cow, with an average butterfat test of 4.03 percent.

Under Herd-Improvement rules Brown Swiss herds containing 5,431 cows and heifers that completed yearly production records from April 1, 1940, to January 1, 1945, had an average production of 8,985⁴ pounds of milk and 368.4 pounds of butterfat per cow, with an average test of 4.1 percent.

The 10 highest butterfat and the 10 highest milk producers among the Brown Swiss, up to January 1, 1944, are listed in table 9.

TABLE 9.—*The 10 highest yearly butterfat and milk producers of the Brown Swiss breed in the United States up to January 1, 1944*

Cow	Butterfat	Cow	Milk
	<i>Pounds</i>		<i>Pounds</i>
Illini Nellie 26578.....	1,200.4	Illini Nellie 26578.....	28,570
Mary's Nell 36395.....	1,109.7	Mary's Nell 36395.....	29,487
Swiss Valley Girl 10th 7887.....	1,106.3	Swiss Valley Girl 10th 7887.....	27,514
Jane of Vernon 29496.....	1,075.6	Believe 4245.....	25,848
June's College Girl 11427.....	1,062.3	Alice Lee 2nd 8777.....	24,845
Privet of Lee's Hill 36503.....	1,037.7	Gertrude Baron 38520.....	24,668
Greenwood Valley Lass 18823.....	1,037.1	June's College Girl 11427.....	24,572
Winnie of River Dale 34280.....	1,029.3	Clepe E. 14082.....	24,226
Jane's Royal's Maida of Lee's Hill 56346.....	1,021.1	Miss Mary W. of Vandalia 5th 21277.....	24,018
Swiss Girl F. C. 13853.....	1,003.8	Jane of Vernon 29496.....	23,569

BULLS

Table 10 lists 10 registered Brown Swiss bulls that were proved in dairy-herd-improvement associations and reported in the Bureau of Dairy Industry proved-sire lists, published by the United States Department of Agriculture up to January 1, 1945. For a bull to be considered for inclusion in this table, he must have met the following requirements:

(1) He must have had 10 or more unselected daughters with production records, whose dams also had production records.

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds.

Records of the daughters and of their dams were converted where necessary to a twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records was taken.

From the sires that met these conditions the 10 whose daughters average the highest in butterfat production were selected.

⁴ Computed by dividing the average butterfat production by the average test.

TABLE 10.—*Ten registered Brown Swiss sires proved in dairy-herd-improvement associations*

Name and number of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>
Cinderella's Duke 33801.....	10	515	92
Geno's Carl of Mt. Vernon 25090.....	13	494	57
Illini Nellie Design 29090.....	10	489	76
Blankus Baronet of Walhalla 30445.....	13	486	72
Louie of Bowerhome 26539.....	13	482	43
Shyann's Speed King 34248.....	13	481	84
Joan's College Dean 31302.....	13	477	66
Nevard of Bowerhome 23652.....	31	475	89
Cinnamon King of Cedar Valley 36168.....	11	474	55
June's College Girls' Wallace of Walhalla 24084.....	11	467	26

GUERNSEY

ORIGIN AND HISTORY

The Guernsey breed originated in the Channel Islands, near the north coast of France. It is thought that this breed was developed from a cross between the large red and brindle cattle of Normandy and the small red cattle of Brittany, in France. The exact date of origin is unknown, but it was probably in the latter part of the seventeenth century or before.

All the cattle in the Channel Islands were at one time known as Alderneys. After laws had been enacted forbidding the importation of cattle from the Continent or between the islands of Guernsey and Jersey, two distinct breeds came to be recognized. The one on the islands of Alderney, Sark, and Guernsey became known as the Guernsey breed and the one on Jersey Island as the Jersey breed.

IMPORTATION AND DISTRIBUTION

The first cattle from the Channel Islands brought to the United States were called Alderneys. They were imported in the latter part of the eighteenth century and may have been either Guernsey or Jersey cattle. The first animals recorded in the herdbook of the American Guernsey Cattle Club were brought over in 1830. A few more were imported in the next two decades, but not until about 1870 were extensive importations made. Since that time importations have been made nearly every year.

Table 1 shows that, in 1932, there were in the United States about 3,709,000 animals carrying more or less Guernsey blood. According to table 2, there were 200,721 registered Guernseys in the United States in 1930. By January 1, 1945, it was estimated, the number of registered Guernseys had increased to 390,857.⁵

⁵ See footnote 2, p. 12.

GENERAL CHARACTERISTICS

The score card for bulls and cows adopted by the Purebred Dairy Cattle Association describe the characteristics of Guernseys (figs. 8, 9, and 10) as follows:

Color.—A shade of fawn with white markings clearly defined, black or brindle markings objectionable. Skin should show golden yellow pigmentation. When other points are equal, a clear or buff muzzle will be favored over a smoky or black muzzle.

Size.—A mature ew in milk should weigh about 1,100 pounds. A mature bull in breeding condition should weigh about 1,700 pounds. The calves at birth weigh from 55 to 85 pounds.

Horns.—Inelining forward, small and yellow at base, refined, medium in length and tapering toward tips.

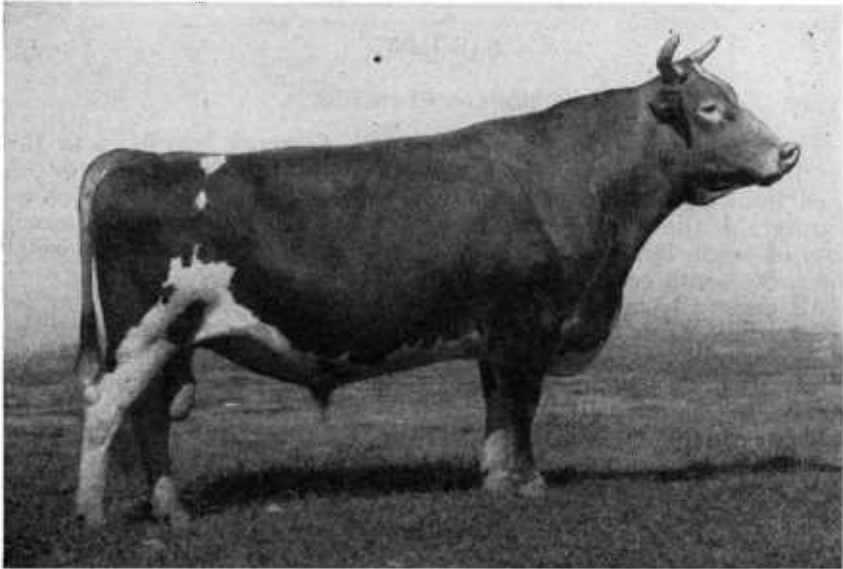


FIGURE 8.—Guernsey bull, Argilla General Lee 245808. Grand Champion, National Dairy Show, 1941

PRODUCTION

Guernsey milk usually carries a high percentage of butterfat and a yellow color.

The 88,104 Guernsey records completed in the Advanced Register up to January 1, 1945, average 10,094 pounds of milk containing 501 pounds of butterfat, and 5.0 percent of butterfat.

Under Herd-Improvement rules Guernsey cows completed 21,242 yearly records up to January 1, 1945, with an average production of 8,628 pounds of milk and 423 pounds of butterfat, with a test of 4.9 percent.

The 10 highest butterfat and the 10 highest milk producers among the Guernseys, up to April 1, 1944, are shown in table 11.

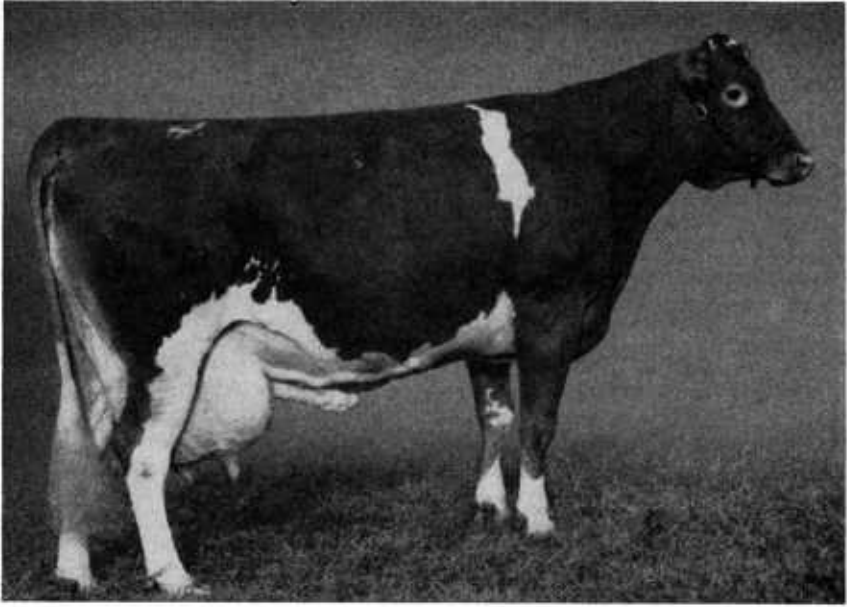


FIGURE 9.—Guernsey cow, Cathedral Rosalie 334299. Highest butterfat producer of the breed in the United States.

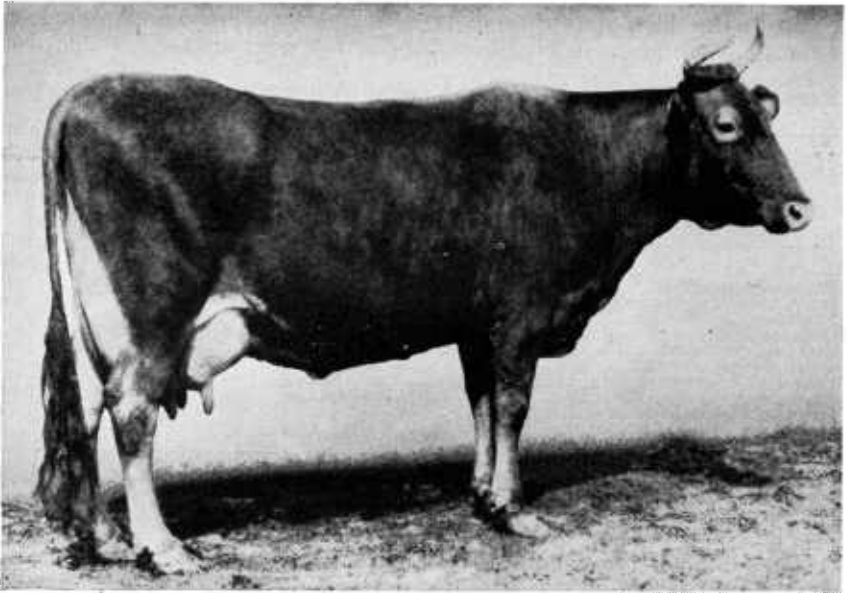


FIGURE 10.—Guernsey cow, Murne Cowan 19597. Highest milk producer of the breed in the United States.

TABLE 11.—*The 10 highest yearly butterfat and milk producers of the Guernsey breed in the United States, up to April 1, 1944*

Cow	Butterfat	Cow	Milk
	<i>Pounds</i>		<i>Pounds</i>
Cathedral Rosalie 334299.....	1, 213. 1	Murne Cowan 19597.....	24, 008
Noranda's Milkmaid 266975.....	1, 155. 8	Cathedral Rosalie 334299.....	23, 714
Anesthesia Faith of Hill Stead 114354.....	1, 112. 5	Grassland Zenoria 185315.....	22, 848
Tarbell Farms Royal Lenda 467961.....	1, 109. 0	Frankland Giralda 466022.....	22, 368
Countess Prue 43785.....	1, 103. 3	Happyholme Anson's Sugar 412240.....	22, 047
Murne Cowan 19597.....	1, 098. 2	Sunny Valley's Favorite 559287.....	22, 012
C. F.'s Mint Julip 482422.....	1, 090. 2	Topsy of Thousand Springs 137339.....	22, 000
Nancy Hanks of Silver Maples 380583.....	1, 087. 0	Pet of La Grange 2d 48429.....	21, 968
Alfalfa Farm Primrose 474545.....	1, 083. 9	Trixie Alice of Cowan Farm 225436.....	21, 932
Wonder of Woodside 474809.....	1, 083. 4	Avis Acres Robin 429932.....	21, 857

BULLS

Table 12 lists 10 registered Guernsey bulls that were proved in dairy-herd-improvement associations and reported in the Bureau of Dairy Industry proved-sire lists, published by the United States Department of Agriculture up to January 1, 1945. For a bull to be considered for inclusion in this table, he must have met the following requirements:

(1) He must have had 10 or more unselected daughters with production records, whose dams also had production records;

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds.

Records of the daughters and their dams were converted where necessary to a twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records was taken.

From the sires that met these conditions the 10 whose daughters average the highest in butterfat production were selected.

TABLE 12.—*Ten registered Guernsey sires proved in dairy-herd-improvement associations*

Name and number of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>
Florham Superior 70439.....	29	518	131
Ridgelydale's Alert Challenger 248732.....	10	512	100
Troutmere Zeke 217068.....	10	509	31
Chincona Houdan 218677.....	16	501	39
Sunnyvale Sun 103167.....	13	495	49
Argilla Catamount 219182.....	10	492	34
Liberty's Starlight 211327.....	12	488	81
Gayhead's Mohammed 209211.....	10	486	192
Lockshore Monogram 203591.....	11	483	145
His Majesty of Bournedale 194262.....	10	482	72

HOLSTEIN-FRIESIAN

ORIGIN AND HISTORY

The cattle from which our present Holstein-Friesian breed has descended were developed in the northern part of the Netherlands, especially in the Province of Friesland, and in the neighboring Provinces of northern Germany. The time of their origin as a recognized distinct breed is unknown, but it is probable that they have been selected for their dairy qualities for about 2,000 years.

Before 1885 there were two associations furthering the interests of this breed in the United States. One maintained a Holstein herdbook, and the other a Dutch-Friesian herdbook. In 1885 the two associations were combined into the Holstein-Friesian Association of America, and from that time on only one herd register has been maintained. This is known as the Holstein-Friesian herdbook. While the official name of the breed is Holstein-Friesian, the single word "Holstein" is more common in ordinary use.

IMPORTATION AND DISTRIBUTION

The first importations of Holsteins into the United States were made in 1795, and afterwards a few were brought in from time to time up to 1879, following which heavy importations were made each year until 1887. Thereafter only a few were imported up to 1905, and since then, because of the prevalence of foot-and-mouth disease in Europe, very few have been imported.

Table 1 shows that in 1932 there were in the United States 9,465,000 animals carrying more or less Holstein blood. According to table 2, there were, in 1930, 649,739 registered Holsteins in the United States. It is estimated that on January 1, 1945, the number of registered Holsteins was 706,622.⁷ Holstein cattle are found throughout all the 48 States, though by far the largest number are in New York, Wisconsin, Pennsylvania, Michigan, Ohio, and Illinois, in the order named. These 6 States probably contain more than 60 percent of the registered Holstein cattle in the United States.

GENERAL CHARACTERISTICS

The Holsteins (figs. 11, 12, and 13) are the largest of the dairy breeds. The score cards for bulls and cows adopted by the Purebred Dairy Cattle Association describe the Holstein characteristics as follows:

Color.—Black and white markings clearly defined. Color markings which bar registry are solid black, solid white, black in switch, black belly, black encircling leg touching hoof, black from hoof to knee or hock, black and white intermixed to give color other than distinct black and white.

Size.—A mature cow in milk should weigh about 1,500 pounds. A mature bull in breeding condition should weigh about 2,000 pounds. Calves at birth weigh from 70 to 105 pounds.

Horns.—Inclining forward, incurving, small at base, refined, medium length and tapering toward tips.

PRODUCTION

The Holsteins produce a large quantity of milk with a comparatively low butterfat content.

The 50,602 cows of all ages with yearly records in the Advanced Register completed up to October 1, 1943, produced an average per cow of 16,670 pounds of milk and 574 pounds of butterfat, with 3.4 percent of butterfat.

In the Herd-Improvement Register, up to October 1, 1943, Holstein herds containing 118,467 cows had completed yearly records with an average of 11,335 pounds of milk and 391 pounds of butterfat, with a test of 3.5 percent.

⁷ See footnote 2, p. 12.

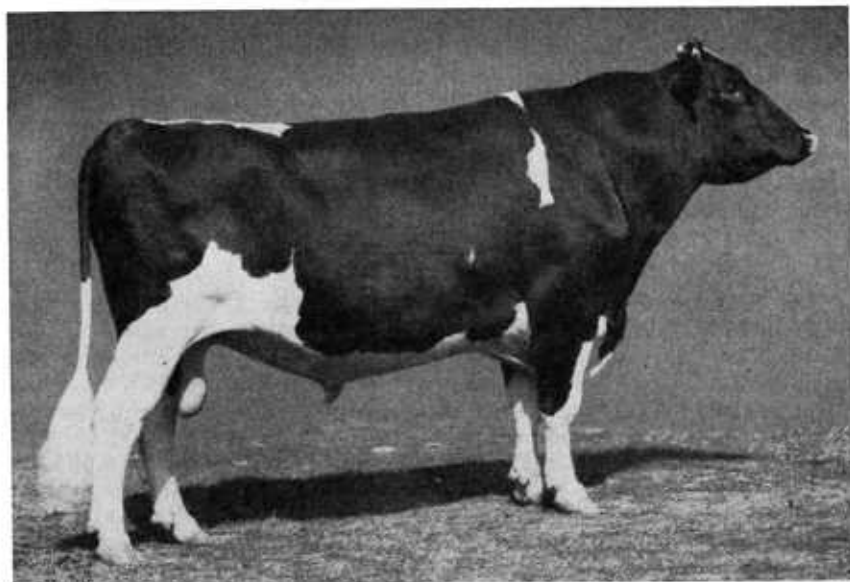


FIGURE 11.—Holstein bull, King Bessie Korndyke Ormsby 14th 667791. Grand Champion, National Dairy Show, 1940.

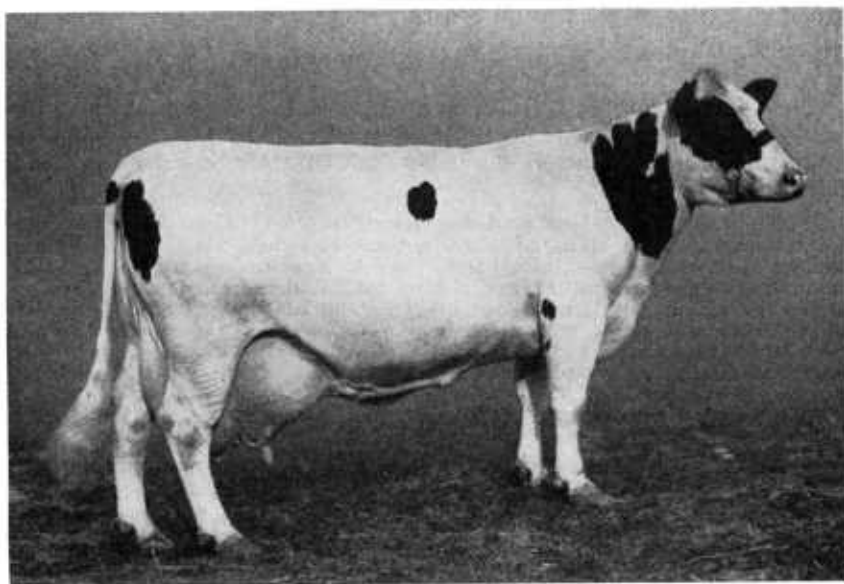


FIGURE 12.—Holstein cow, Carnation Ormsby Butter King 1165152. This cow held the highest yearly butterfat record of all the breeds in the United States up to January 1, 1945.

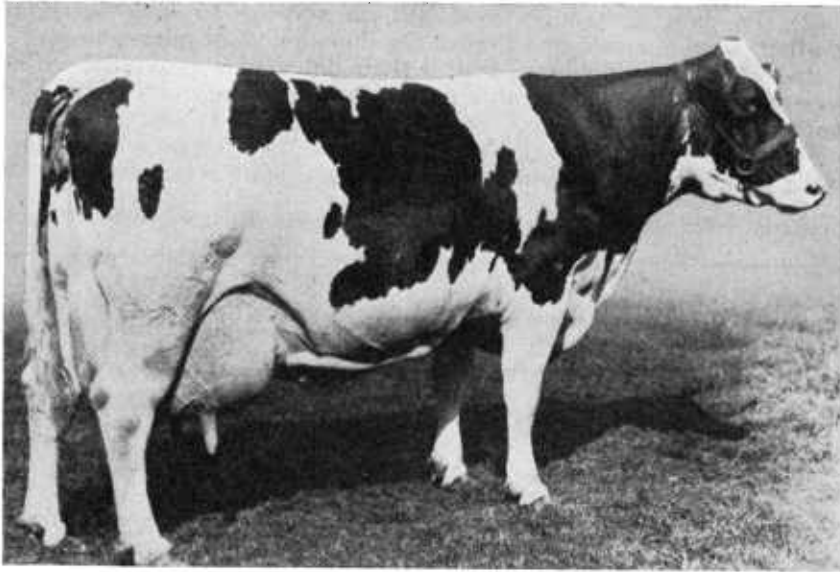


FIGURE 13.—Holstein cow, Carnation Ormsby Madcap Fayne 1639621. This cow held the highest yearly milk record of all the breeds in the United States up to January 1, 1945.

The 10 highest butterfat and the 10 highest milk producers among the Holsteins, up to January 1, 1944, are listed in table 13.

TABLE 13.—*The 10 highest yearly butterfat and milk producers of the Holstein breed in the United States, up to January 1, 1944*

Cow	Butterfat	Cow	Milk
	<i>Pounds</i>		<i>Pounds</i>
Carnation Ormsby Butter King 1165152.....	1,402.0	Carnation Ormsby Madcap Fayne 1639621.....	41,943
Carnation Ormsby Madcap Fayne 1639621.....	1,392.4	Carnation Ormsby Butter King 1165152.....	38,607
De Kol Plus Segis Dixie 295135.....	1,349.3	Segis Pieterdje Prospect 221846.....	37,381
Carnation Homestead Inka Mutual 1820797.....	1,333.8	Carnation Prospect Veeman 799610.....	36,859
Carnation Ormsby Nellie 1326284.....	1,328.8	Carnation Ormsby Madcap 1554602.....	36,851
Calamity Nig of Elmwood Farms 1560447.....	1,327.9	Helm Veeman Wooderest 486877.....	36,218
Carnation Ormsby Madcap 1554602.....	1,313.0	Carnation Ormsby Nellie 1326284.....	35,887
Carnation Ormsby Segis Beauty 1203395.....	1,290.4	Lady Pride Pontiac Lieuwkje 849602.....	35,627
Daisy Aaggie Ormsby 3d 571569.....	1,286.2	Kolrain Marion Finderne 317396.....	35,340
Carnation Homestead Princess Inka 1863024.....	1,245.3	Alcartra Ormsby Canary 1135532.....	35,272

BULLS

Table 14 lists 10 registered Holstein bulls that were proved in dairy-herd-improvement associations and reported in the Bureau of Dairy Industry proved-sire lists, published by the United States Department of Agriculture up to January 1, 1945. For a bull to be considered for inclusion in this table, he must have met the following requirements:

(1) He must have had 10 or more unselected daughters with production records, whose dams also had production records.

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds.

Records of the daughters and of their dams were converted where necessary to a twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records was taken.

From the sires that met these conditions the 10 whose daughters average the highest in butterfat production were selected.

TABLE 14.—*Ten registered Holstein-Friesian sires proved in dairy-herd-improvement associations*

Name and number of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	Number	Pounds	Pounds
Lakefield King Ventnor Fobes 732743.....	14	601	97
King Bessie Ormsby Pietertje 86th 688263.....	12	599	61
King Champion Jannek 18th 460879.....	17	598	128
Carnation Peerless Segis 700150.....	14	573	84
Man-O-War Jewell Homestead Fobes 786905.....	11	563	146
Mohofar Colantha Ormsby 617203.....	11	547	102
Inka Ormsby Segis Beauty 702224.....	11	542	63
Pietertje Rag Man (Twin) 771427.....	10	537	89
Bonny Brook Vale Advantage 722112.....	10	535	119
Posch Ormsby Fobes 11th 701072.....	12	531	135

JERSEY

ORIGIN AND HISTORY

The Jersey breed originated in the Island of Jersey, one of the group of Channel Islands, between England and France. In 1789 a law was passed prohibiting the importation of cattle into Jersey Island except for immediate slaughter. Shortly afterwards the cattle on that island became known by the name of Jersey instead of Alderney. No outside blood has been introduced since that time.

IMPORTATION AND DISTRIBUTION

The first importation of Jerseys into the United States was made in 1850. A few more were brought over about 20 years later, and from 1870 to 1890 there were numerous importations. Since 1890 many Jerseys have been imported every year.

The Jerseys are more evenly distributed in the United States than any other breed. Table 1 shows that, in 1932, there were in the United States, 9,961,000 animals carrying more or less Jersey blood. According to table 2, in 1930 there were 354,939 registered Jerseys in the United States. It is estimated that on January 1, 1945, the number of registered Jerseys was 340,166.⁸

GENERAL CHARACTERISTICS

The score cards for bulls and cows adopted by the Purebred Dairy Cattle Association describe the Jersey characteristics as follows:

Color.—A shade of fawn, with or without white markings.

Size.—A mature cow in milk should weigh about 1,000 pounds. A mature bull in breeding condition should weigh about 1,500 pounds.

Horns.—Inclining forward, incurving small at base, refined, medium length and tapering toward tips.

⁸ See footnote 2, p. 12.

The Jersey (figs. 14, 15, and 16) is the smallest of the breeds discussed in this bulletin. The calves weigh from 40 to 75 pounds at birth. The heifers develop rapidly and usually mature sufficiently to calve the first time at 24 months of age.

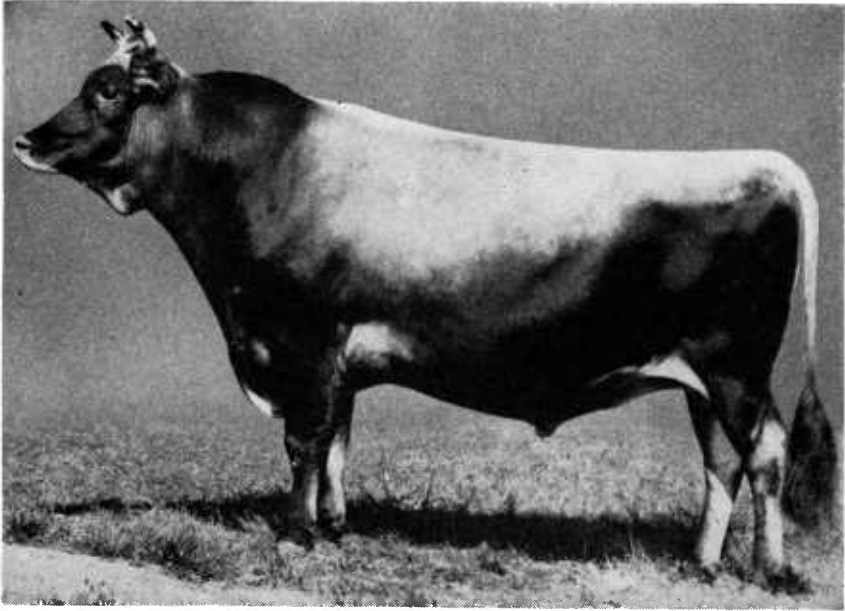


FIGURE 14.—Jersey bull, Misty Dawn's Successor 382743. Grand Champion, National Dairy Show, 1940.

PRODUCTION

Jersey milk usually is yellow and high in percentage of butterfat. Up to January 1, 1944, 52,679 cows and heifers had completed 70,306 Register-of-Merit records in either the 305- or 365-day divisions. The average production per cow of this entire group was 8,644 pounds of milk and 463 pounds of butterfat, with an average test of 5.36 percent. Of these, 33,842 were 365-day records which averaged 9,215 pounds of milk and 495 pounds of butterfat.

In the Herd-Improvement Registry up to January 1, 1943, 83,576 records were made in 3,036 herds, and these records average 7,035 pounds of milk and 378 pounds of butterfat, with an average test of 5.37 percent.

The 10 highest butterfat and the 10 highest milk producers among the Jerseys, up to January 1, 1945, are listed in table 15.

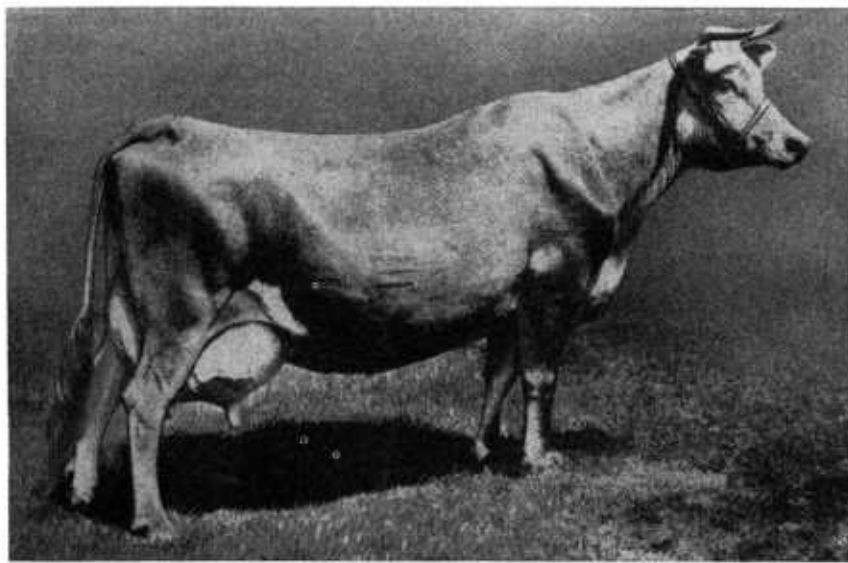


FIGURE 15.—Jersey cow, Abigail of Hillside 457241. Highest milk producer of the breed in the United States.

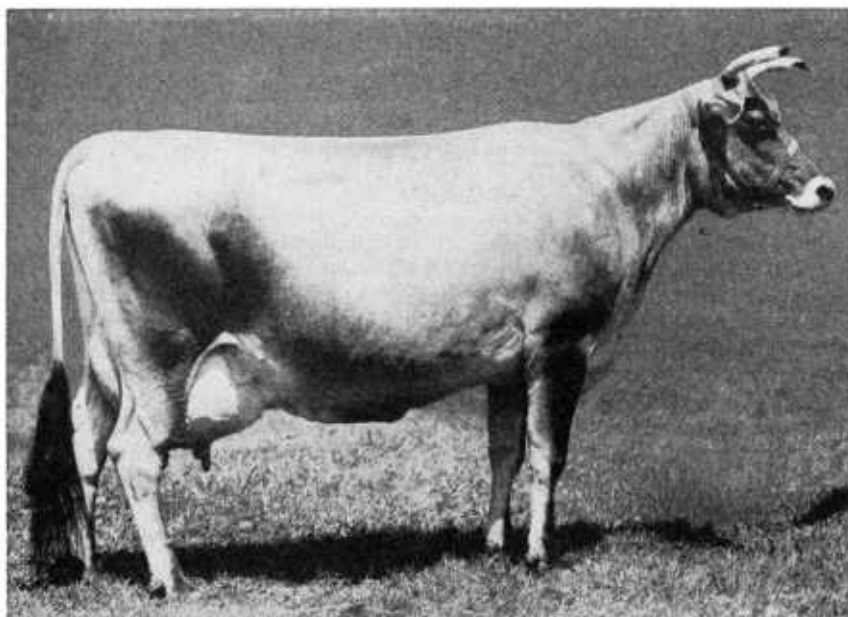


FIGURE 16.—Jersey cow, Stockwell's April Pogis of H. P. 694544. Highest butter-fat producer of the breed in the United States.

TABLE 15.—*The 10 highest yearly butterfat and milk producers of the Jersey breed in the United States, up to January 1, 1945*

Cow	Butterfat	Cow	Milk
	<i>Pounds</i>		<i>Pounds</i>
Stockwell's April Pogis of H. P. 694544.....	1, 218. 5	Abigail of Hillside 457241.....	23, 677
Abigail of Hillside 457241.....	1, 197. 5	Financial Madam Bess 990929.....	21, 251
Darling's Jolly Lassie 435948.....	1, 141. 3	Madeline of Hillside 389336.....	20, 624
Dairylike Star Dolly 1099469.....	1, 132. 2	Fauvic's Star 313018.....	20, 616
Groff's Constance 367292.....	1, 130. 1	Golden Chief's Lady May 601637.....	19, 922
Prince Emma of H. S. F. 359390.....	1, 110. 0	Lady Senator Fourply Owllet 1063518.....	19, 860
Mayflower's Pogis Surprise 705871.....	1, 105. 1	Fauvic Ruth 385463.....	19, 805
California's Rinda's Insie 565559.....	1, 073. 4	Passport 219742.....	19, 695
Imp. Cancalaise 696129.....	1, 072. 4	Red Lady 396118.....	19, 608
Sybil's Lucky June 959891.....	1, 055. 7	St. Martin's Ever Butterball 1102219.....	19, 415

¹ 305-day record.

BULLS

Table 16 lists 10 registered Jersey bulls that were proved in dairy-herd-improvement associations and reported in the Bureau of Dairy Industry proved-sire lists, published by the United States Department of Agriculture up to January 1, 1945. For a bull to be considered for inclusion in this table, he must have met the following requirements:

(1) He must have had 10 or more unselected daughters with production records, whose dams also had production records.

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds.

Records of the daughters and of their dams were converted where necessary to a twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records was taken.

From the sires that met these conditions, the 10 whose daughters average the highest in butterfat production were selected.

TABLE 16.—*Ten registered Jersey sires proved in dairy-herd-improvement associations*

Name and number of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>
Gamboge Oxford Flash Lad 406492.....	12	542	63
Pauline's Missionary 370287.....	23	519	75
Winnona's Pogis Chief 341773.....	12	506	26
Floss' Duke's Model 369058.....	14	502	35
Gapon's Countess' Lad 159969.....	19	496	36
Josephine's Royal King 250214.....	68	493	45
Garnet's Victor of R. F. 338261.....	15	488	26
Philidora's Standard 331755.....	10	480	72
Glenwood Fauvic King 370009.....	12	479	47
Vixen's Oxford Beau 131638.....	10	473	82

THE AMERICAN DAIRY CATTLE CLUB

The American Dairy Cattle Club, which was organized under the laws of the State of Illinois, filed its certificate of organization November 14, 1936. According to its bylaws this club was formed to improve the dairy cattle of the United States, regardless of color or previous breeding, through the practice of continuously testing the production of females and proving bulls, in the herds of both members and non-members under rules established by the board of directors.

The recording system consists of four orders. Each order represents a generation, starting with the First (or lowest) and progressing to the Fourth (or highest) Order. No ancestry or pedigree record is required for the First Order, but for recording in all higher orders, with few exceptions, there is a pedigree as well as a performance requirement. All performance requirements for females are based on a twice-a-day milking, 305-day record, calculated to maturity, and for bulls on an equal parent index of milk production and percentage of butterfat from at least five dam-and-daughter pairs, based on such records. The requirements for recording are given in table 17.

Fifteen animals had been recorded in the Fourth Order up to January 1, 1945.

TABLE 17.—Requirements for recording cows and bulls in American Dairy Cattle Club Record

Order	Pedigree requirements for recording cow or bull	
First Order.....	No pedigree requirement.	
Second Order.....	Parents must be recorded in at least the First Order. ¹	
Third Order.....	Parents must be recorded in at least the Second Order. ²	
Fourth Order.....	Parents must be recorded in at least the Third Order.	
Order	Performance requirements for recording—	
	Cows (record of butterfat production)	Bulls (proved-sire index of butterfat production)
First Order.....	<i>Pounds</i> (Must have a complete lactation record, no quantity requirement.) ³	<i>Pounds</i> 375
Second Order.....	350	400
Third Order.....	375	425
Fourth Order.....	400	450

¹ The pedigree requirement for recording a bull in the Second Order is waived in the case of any dairy bull with a 10-pair index of 450 pounds of butterfat.

² The pedigree requirement for recording a bull in the Third Order is waived in the case of any bull with a 15-pair index of 500 pounds of butterfat.

³ The performance requirement for recording a cow in the First Order is waived in the case of any cow with two daughters each having a record of at least 300 pounds of butterfat.

THE PUREBRED DAIRY CATTLE ASSOCIATION

The Purebred Dairy Cattle Association was organized in 1940. Membership is limited to recognized clubs, societies, and associations engaged in maintaining registers of purebred dairy cattle. Each such organization shall have three representatives.

The objects of this association in general are: To increase the interest of all dairymen in purebred dairy cattle, first, by cooperatively making available data showing the economic need and the value of the registered dairy animal; secondly, to cooperate with and assist agricultural educational institutions in the United States in such projects and programs as will encourage the breeding of better dairy cattle through the use of purebred seed stock; and thirdly, by originating or partici-

pating in activities which will advance the interests of purebred registered dairy cattle.

The membership of this association on January 1, 1945, consisted of five national breed associations representing the following breeds: Ayrshire, Brown Swiss, Guernsey, Holstein, and Jersey.

BREED ASSOCIATIONS

The various national breed associations and clubs maintain offices and forces whose duty it is (1) to keep the herdbooks for their respective breeds; (2) to keep a record of the animals that have qualified for the additional registration because of meritorious performance; and (3) to further the interest of the breed in other ways. The official names of these organizations, the names of their respective secretaries, and their addresses are as follows:

Ayrshire Breeders' Association of the United States of America, C. T. Conklin, secretary, Brandon, Vt.

Brown Swiss Cattle Breeders' Association of America, Fred S. Idtse, secretary, Beloit, Wis.

The American Dairy Cattle Club, Clifford L. Clevenger, secretary, 134 North LaSalle St., Chicago 2, Ill.

The American Guernsey Cattle Club, Karl B. Musser, secretary, Peterborough, N. H.

The American Jersey Cattle Club, J. C. Nisbet, secretary, 107 N. Sixth St., Columbus 15, Ohio.

The Holstein-Friesian Association of America, H. W. Norton, Jr., secretary, Brattleboro, Vt.

The Purebred Dairy Cattle Association, G. A. Bolling, secretary, c/o Strathglass Farms, Port Chester, N. Y.